

INDUSTRIAL TECHNOLOGY ENGINEERING RELATED

**RELATED ACADEMIC SKILLS:
WHAT THE VOCATIONAL INSTRUCTION SHOULD REINFORCE:**

	ACADEMIC AREA	INSTRUCTIONAL LINKS
OCCUPATIONAL COMPETENCIES:		
1. Use and maintain basic manual drafting	Language Arts	Comprehends/information-written/purpose
	Science	Applies/uses/laboratory instruments techniques
2. Use architect metric, civil, and mechanical	Math	Converts/units/conversion rule
	Science	Applies/uses/laboratory instruments-techniques
3. Identify and draw the various line types.	Math	Constructs/lines/various types
4. Demonstrate correct lettering techniques (e.g., freehand, instruments).	Science	Applies/uses/laboratory instruments-techniques
5. Reproduce drawings (i.e., blueprints, plots).	Math	Constructs/charts/tables/graphs
	Math	Interprets/charts/tables/graphs/symbols
	Science	Analyzes/evaluates/science technology
	Science	Applies/uses/laboratory instruments
6. Prepare drawings/designs using a variety	Science	Applies/uses/laboratory instruments-techniques
7. Construct and bisect lines, arcs and angles.	Math	Constructs/bisect lines, arcs, angles
8. Construct perpendicular and parallel lines.	Math	Construct/lines/parallel/perpendicular
9. Construct geometric shapes (e.g., pentagon, hexagon, octagon).	Math	Constructs/geometric figures
10. Construct drawings of tangent lines, arcs and ellipses.	Math	Constructs/tangent lines, arcs, ellipses
11. Draw orthographic views and transfer features. views.	Language Arts	Composes/visual aides/drawings

12. Freehand sketch orthographic and pictorial	Language Arts	Composes/visual aides/drawings
13. Apply basic dimensioning techniques.	Language Arts Science	Comprehends/information-written/rationale Applies/uses/laboratory techniques
14. Construct basic sectional views.	Math Math	Constructs/lines/sectional views Constructs/geometric figures
15. Construct axonometric, oblique and one and two point perspective drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/geometric figures
16. Construct drawings of primary and secondary auxiliary views.	Language Arts Math	Composes/visual aides/drawings Constructs/lines/primary-secondary views
17. Solve mathematical problems related to drafting (e.g., conversion of units).	Math Math	Solves problems/generates conclusions Converts/units
18. Use drafting references and standards.	Language Arts	Uses/text resources
19. Identify common manufacturing and construction materials.	Language Arts	Identifies/information-written/main idea
20. Identify types of fasteners, bearings, seals, and springs.	Language Arts	Comprehends/information-written/purpose
21. Demonstrate keyboarding skills.	Science	Uses/computers/keyboarding
22. Demonstrate basic CAD operations (i.e., log on and off, use of menu and retrieval and storage of drawings using a CAD filing system).	Science	Uses/computers/basic operations
23. Demonstrate proper care and maintenance of CAD equipment (e.g., floppy disks, plotting pens).	Language Arts Science	Comprehends/information-written/rationale Uses/computers/care and maintenance
24. Construct object intersections and developments.	Language Arts Math	Composes/visual aides/drawings Constructs/lines
25. Identify appropriate manufacturing processes.	Language Arts	Identifies/information-written/main idea
26. Use precision measuring instruments.	Math Science	Calculates/measurement/precision Applies/uses/laboratory instruments-techniques
27. Construct keyway and keyseat drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/lines

28. Calculate tolerances and fits.	Math	Calculates/evaluates/measurement/precision
29. Construct and interpret geometric dimensioning and tolerancing symbols.	Language Arts Math	Composes/visual aides/symbols Constructs/lines
30. Construct spline and gear drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/lines
31. Construct cam and follower drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/lines
32. Construct fastener head drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/lines
33. Construct schematic and simplified thread drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/lines
34. Interpret and construct welded assembly drawings.	Math	Interprets/symbols
35. Construct casting drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/lines
36. Construct drawings of molded plastic parts.	Language Arts Math	Composes/visual aides/drawings Constructs/lines
37. Identify and select piping components (e.g., pipe schedules, fittings, etc.).	Language Arts	Comprehends/information-written/rationale
38. Construct sheet metal-flat pattern drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/lines/pattern drawings
39. Construct exploded and orthographic assembly drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/lines/assembly drawings
40. Construct an architectural presentation drawing with site plan (i.e., landscape symbols), building elevations and wall sections.	Language Arts Math	Composes/visual aides/drawings Constructs/lines/architectural drawings
41. Construct various section and detail drawings (i.e., stairs, walls, roofs).	Language Arts Math	Composes/visual aides/drawings Constructs/lines/detail drawings
42. Construct interior and exterior elevation drawings.	Language Arts Math	Composes/visual aides/drawings Constructs/lines/elevation drawings
43. Construct framing plans.	Language Arts Math	Composes/visual aides/drawings Constructs/lines/framing plans
44. Develop, construct and dimension a residential floor plan layout	Language Arts	Composes/visual aides/drawings

	Math	Constructs/lines/floor plan layout
45. Construct foundation/basement plans.	Language Arts Math	Composes/visual aides/drawings Constructs/lines/foundation-basement plans
46. Prepare window, door and finish schedules.	Language Arts	Composes/draft oral-written/sequence
47. Construct a building perspective drawing.	Language Arts Math	Composes/visual aides/drawings Constructs/lines/perspective drawings
48. Construct drawings of electronic diagrams (i.e., schematic, connection, interconnection).	Language Arts Math	Composes/visual aides/schematic Constructs/lines/electronic diagram

LEADERSHIP COMPETENCIES:

1. Follow directions.	Language Arts	Comprehends/information oral-written
	Language Arts	Attends/directions/tasks
2. Speak effectively in front of others.	Language Arts Language Arts	Presents/informal speech /discussion Evaluates/information-oral
3. Lead a discussion.	Language Arts	Presents/informal speech/discussion
4. Utilize time effectively.	Language Arts Free Enterprise	Applies/uses/study habits/methods Identifies/cost factors/human resources
5. Prioritize series of tasks.	Language Arts	Composes/edits/draft oral-written/sequence
6. Define goals.	Language Arts	Describes/purpose/strategy
7. Work effectively with others.	Language Arts	Adapts/style
8. Listen effectively.	Language Arts	Adapts/strategy/listening
9. Resolve conflict	Language Arts	Adapts/diction/audience-purpose-situation
10. Adapt to environment/situation.	Language Arts	Adapts/style

JOB GETTING, JOB KEEPING COMPETENCIES:

1. Identify requirements for a job.	Language Arts	Identifies/information-written/main idea
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2. Complete required forms.	Language Arts	Composes/edits/forms/documents
3. Write application letter.	Language Arts	Composes/letters/business
4. Evaluate job offer.	Language Arts	Evaluates/information-written/ appropriateness
5. Interact with others in courteous and tactful	Language Arts	Adapts/diction/audience-purpose- situation
6. Cooperate with others.	Language Arts	Adapts/diction/structure
7. Accept individual differences.		
8. Respect the property of others.		
9. Organize thoughts and clearly expresses point of view.	Language Arts	Adapts/strategy/speaking
10. Organize thoughts and writes clearly	Language Arts	Adapts/strategy/writing
11. Exhibit dependability.		
12. Demonstrate punctuality.		
13. Ask for help when needed.		
14. Accept supervision willingly.	Language Arts	Attends/directions/task
15. Adapt to change/demonstrates flexibility		
16. Manage time effectively.	Language Arts	Applies/uses/study habits/methods
17. Follow rules and regulations.Language Art	Comprehends/information-written/ rationale	
	Language Arts	Attends/directions/tasks
18. Produce quality work.	Language Arts	Attends/directions/tasks
19. Work within guidelines.	Language Arts	Attends/directions/tasks
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21. Comply with safety and health rules	Language Arts	Comprehends/information-written/ rationale
	Free Enterprise	Describes/explains/government impact/costs/regulations
22. Utilize equipment correctly.		
23. Maintain clean and orderly work area.		

24. Accept new challenges.	Free Enterprise	Identifies/job opportunities
25. Demonstrate personal hygiene and cleanliness.		
26. Explain the concept of organized labor and business.	Free Enterprise	Describes/explains/labor relations
27. Explain the concept of profit.	Free Enterprise Free Enterprise	Defines/economic terms/profit Describes/explains/money role

ENTREPRENEURSHIP COMPETENCIES:

1. Recognize relevant, ethical issues in business.	Language Arts	Comprehends/information written-oral
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